



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

August 3, 2011

Mr. Joe Kelly  
President  
Montrose Chemical Corporation of California  
600 Ericksen Ave. NE, Suite 380  
Bainbridge Island, WA 98110

RE: Treatment Train Advisory, Dual Site Groundwater Operable Unit, Montrose Superfund Site Los Angeles, California, June 21, 2011

Dear Mr. Kelly:

EPA has reviewed your June 21, 2011 Treatment Train Advisory report for the Montrose Dual Site Operable Unit. Montrose is abandoning the previous proposal to utilize macro porous polymer extraction ("MPPE") and is proposing instead a treatment train for groundwater that utilizes the following processes:

- 1) Pretreatment for arsenic removal ( if necessary);
- 2) HiPOx treatment to remove pCBA to achieve the reinjection standard of 25,000 µg/L specified in the 1999 Record of Decision (ROD);
- 3) Air stripper to volatilize VOC constituents, followed by Vapor-phase Granular Activated Carbon Filtration to treat the off gas from the air stripper; and
- 4) Liquid-phase Granular Activated Carbon (LGAC) filtration to remove pesticides and any residual constituents.

The proposed treatment alternatives are consistent with the 1999 ROD, and EPA concurs with the proposal. Montrose should proceed with preparing revised preliminary design documents to incorporate these changes and provide the design details for these processes. Also, please provide an updated schedule for deliverables to complete the Remedial Design.

Technical comments prepared by EPA's consultant, CH2M Hill are attached to this letter, which provide further guidance on details to be incorporated into the design. If you have any questions, please contact me at (415) 972-3150.

Sincerely,

A handwritten signature in black ink, appearing to read "Carolyn d'Almeida".

Carolyn d'Almeida  
Remedial Project Manager

cc: Mark Schultheis, Geosyntec  
Paul Sundberg, Montrose  
Mike Palmer, *de maximus, inc*  
Karl Lytz Esq., Latham & Watkins  
Kelly Richardson Esq., Latham & Watkins  
Safouh Sayed, DTSC

Enclosure

## CH2M HILL Review Comments on the Treatment Train Advisory, Torrance Groundwater Remedial System, Los Angeles, California

PREPARED FOR: Carolyn d'Almeida/EPA Region 9  
PREPARED BY: Mike Grigorieff/ CH2M HILL  
Natasha Raykhman/CH2M HILL  
COPIES: File  
DATE: August 3, 2011  
PROJECT NUMBER: 385687.RP.01

At the request of the United States Environmental Protection Agency, Region 9 (EPA), CH2M HILL reviewed the Treatment Train Advisory submittal prepared on behalf of Montrose Chemical Corporation (Montrose) by Geosyntec Consultants, dated June 21, 2011. The advisory presents a revised treatment train proposed for the Torrance Groundwater Remedial System (TGRS) for the Dual Site Groundwater Operable Unit, Torrance, California (the site). The advisory also presents responses pertaining to the preliminary evaluation of alternative treatment technologies performed by EPA (CH2M HILL, 2011); summarizes the results of the evaluation of macro porous polymer extraction (MPPE) treatment technology that was pilot-tested as part of the development of the TGRS treatment train; and discusses other treatment technologies that are potentially applicable for the TGRS.

Based on our review, the proposed treatment train is consistent with the recommendations and considerations provided previously by EPA and CH2M HILL (CH2M HILL, 2011), and EPA's review comments are adequately addressed. We also agree with the decision not to include the MPPE process in the treatment train for the reasons stated in the advisory. However, it should be noted that the Treatment Train Advisory presents only the conceptual level of details regarding the new proposed treatment train for the TGRS. Therefore, the revised preliminary design documents, which incorporate the changes to the TGRS treatment train, shall be developed and presented to EPA for review. In addition, the revised remedial design schedule and a list of deliverables also shall be presented to EPA.

Our specific comments and recommendations are provided below.

1. The proposed treatment train is comprised of the following sequence of treatment processes:
  - Arsenic removal (if necessary)
  - High pressure oxygen (HiPOX) advanced oxidation treatment (for parachlorobenzene sulfonic acid [p-CBSA])

- Air stripping (for volatile organic compound [VOC] removal) with off-gas treatment using vapor-phase granular activated carbon (VGAC)
- Liquid-phase granular activated carbon (LGAC) (for pesticides removal)
- Filtration (for particulate removal prior to well reinjection)

However, we recommend that this treatment train also include a provision for systems that maintain and/or rehabilitate reinjection wells, such as chemical injection systems.

2. An updated basis of design for each key treatment process including design/process parameters and performance criteria shall be developed and submitted to EPA prior to finalizing the intermediate design to ensure the appropriate type, size, and operational flexibility of each treatment process. An example of the information that needs to be included in the basis of design report is presented below for the air stripping process. Similar types of information need to be provided for each of the key proposed treatment processes.

#### **Basis of Design for the Air Stripping Process:**

- Design flows (maximum and minimum flows to address turn-down/turn-up capabilities and/or limitations)
  - Design concentrations
  - Documentation showing that potential water scaling/fouling concerns have been considered and addressed as needed (e.g., if any type of chemical pretreatment with antiscalant chemicals is required)
  - Type of air stripper (conventional packed tower or shallow profile type)
  - Air stripper process parameters: packing media type and height in tower (if applicable), or number of air stripping trays (if applicable), air flow rate, air to water ratio, design water temperature, required percent removals for key VOCs, air stripper modeling results to substantiate design of the air stripper
  - For the associated off-gas VGAC system, provide design flows and conditions (e.g., relative humidity control is very important), carbon vessel size and amount of carbon, identification of the lead or controlling VOC contaminant and how the system will be monitored/controlled to prevent excess emissions to the atmosphere, estimated carbon life or changeout cycles (vendor estimates would be very helpful)
  - Vendor documentation related to the above items, if equipment is going to be preselected; if equipment is going to be bid out competitively, then provide the technical specifications for this equipment
3. An updated list of deliverables and schedule for the remedial design shall be provided to EPA for review.

## **Reference**

CH2M HILL. 2011. Preliminary Evaluation of Alternative Treatment Technologies, Dual Site Groundwater Operable Unit Remedial Design, Montrose Chemical and Del Amo Superfund Site. January 24.

